

Application No. 10/807,079

REMARKS

Claims 1-19 and 24-46 are pending in the application. Claim 2 is currently canceled. Claims 1 and 24 have been amended to place the application in condition for allowance. Claims 20-23 and 47-50 have been withdrawn from consideration as being directed to a non-elected invention.

Claims 1 and 24 have been amended to include the phrase "for use in chemical mechanical polishing" and the limitation of "wherein the polishing pad substrate has a surface energy of about 34 mN/m or less". Support for this amendment can be found in paragraphs [0030] through [0032] and paragraph [0018] in the original specification. No new matter is added by this amendment.

Claims 1-19 and 24-46 are finally rejected under 35 U.S.C. 103(a) as allegedly obvious over Prasad et al, Hirokawa et al, Truong or Lombardo et al. The Office Action states that each reference teaches a polishing pad comprising hydrophilic and hydrophobic material. The Office Action further states that based upon the disclosure in each reference the elements recited in all of the claims would have been obvious, if not disclosed, for the purpose of facilitating the provision of a better pad.

The applicant respectfully disagrees. The polishing pad described by Prasad et al comprises a multi-layer pad material, comprising two or more layers that are joined together without adhesive. The Prasad patent teaches that at least one layer of the polishing pad material is hydrophobic and preferably two or more layers are hydrophilic (column 4, line 43). The present application teaches a polishing pad substrate having a desirable surface energy of 34 mN/m or less, which defines a hydrophobic surface (see paragraph [0011] of the specification). Claims 1 and 24 are currently amended to include the limitation of claim 2, specifically defining the surface energy. Therefore, the Prasad '156 patent teaches away from the present application by teaching that a hydrophilic surface is preferred.

The polishing pad described by Hirokawa et al. is one where the abrasive is embedded in the matrix. Hirokawa discusses a twelfth aspect of his invention wherein a material comprising the polishing tool further comprises a hydrophilic substance. Hirokawa teaches that by including hydrophilic material having a large number of hydrophilic bases on its surface, wettability is assured so that the polishing surface of the

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polishing pad can retain the polishing solution uniformly throughout the polishing surface (see paragraph 0022). Therefore, Hirokawa et al also teach away from the present application where a hydrophobic surface is claimed.

Truong et al. teach a method of seasoning a polishing pad wherein a hydrophobic polishing pad is treated with an alcoholic solution and maintained in a wetted state prior to polishing. The teaching of Truong is to form a hydrophilic surface prior to polishing. The present application is directed to a polishing pad substrate having a hydrophobic surface. Truong et al teaches also away from the present application.

Lombardo discloses a polishing pad made from a hydrophobic polymeric matrix containing hydrophilic additives interspersed therein to provide both hydrophobic and hydrophilic properties to the surface of the pad. The pad taught by Lombardo is described as having separate areas of repulsion and attraction for the slurry thereby maintaining the integrity of the pad. The pad substrate of the present application discusses no such dual property. The present application is directed to a polishing pad substrate having a hydrophobic surface. Therefore, Lombardo et al. teaches away from the present application.

The Office Action states that construction of the pads of the references from the material of the present application would have been obvious. The references, however, all teach away from a polishing pad substrate having a hydrophobic surface. Therefore, motivation was clearly lacking in the prior art at the time of the present invention, because it would not have been desirable to have a hydrophobic surface having a surface energy of 34 mN/m or less.

Claims 1-19 and 24-46 are rejected under 35 U.S.C. 103(a) as allegedly obvious over Hiwatashi et al. The Office Action states that Hiwatashi discloses most of the elements of the claims including a cosmetic comprising the hydrophilic and hydrophobic materials recited in the claims. The Office Action admits that Hiwatashi lacks a teaching of a polishing pad substrate, but asserts that it would be obvious to provide the Hiwatashi materials on some sort of pad to facilitate application of the materials to the body. The Office Action appears to argue that a substrate as described by Hiwatashi is inherently capable of polishing something and therefore reads on the claims of the present application.

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Applicants respectfully disagree. Hiwatashi teaches a cosmetic use polymer for hair, skin or nails, with no compositional similarity to the polishing pad substrate of the claimed invention. The polymer of Hiwatashi et al. comprises a repeating unit having at least the guanidino group. The Hiwatashi et al. polymer may optionally comprise a hydrophobic unit and/or a hydrophilic unit, in addition to the repeating unit having a guanidino group (see paragraph [0035] of Hiwatashi et al.). The Hiwatashi et al. reference does not suggest the desirability of making such drastic modifications needed to arrive at the claimed invention of the present application. For at least these reasons, the cosmetic use polymer of Hiwatashi et al. combined with the assertion by the Office Action that cosmetics are conventionally applied with a pad of some sort, would not lead a person skilled in the art to a polishing pad substrate for chemical-mechanical polishing applications having the surface energy specified in the present application.

For the above mentioned reasons, the applicants assert that claims 1-19 and 24-46 are not obvious over the cited references. Applicants respectfully request that the rejections under U.S.C. §103 be withdrawn.

If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,



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